

encouragement of the deployment of new services.<sup>66</sup> Moreover, the Supreme Court has specifically upheld the FCC's broad rulemaking authority in a variety of contexts, concluding that the Commission has been given a "comprehensive mandate" with "not niggardly but expansive powers."<sup>67</sup>

In addition to the general statutory provisions discussed above, the Commission is given broad authority to impose regulations to promote the efficient use of the radio spectrum and to minimize the possibility that devices will interfere with each other. For example, the Commission is directed, as public convenience, interest or necessity requires, to "[m]ake such regulations not inconsistent with law as it may deem necessary to prevent interference between stations and to carry out the provisions of this chapter."<sup>68</sup> Furthermore, Section 302 of the Communications Act authorizes the FCC to regulate the interference potential of radio frequency devices and prohibits the marketing of devices that fail to comply with the FCC's rules.<sup>69</sup> These provisions have been interpreted to, for example,

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<sup>66</sup> See, e.g., United States v. Southwestern Cable Co., 392 U.S. 157, 158, 161 (1968) (sustaining jurisdiction of the FCC to regulate community antenna television (CATV), at least to the extent "reasonably ancillary to the effective performance of its responsibilities for the regulation of television broadcasting. . .").

<sup>67</sup> National Broadcasting Co. Inc. v. United States, 319 U.S. 190, 219 (1943). See also United States v. Storer Broadcasting Co., 351 U.S. 192 (1956).

<sup>68</sup> 47 U.S.C. § 303(f) (1988).

<sup>69</sup> 47 U.S.C. § 302(a) (a) (1988) provides that the Commission "may, consistent with the public interest, convenience, and necessity, make reasonable regulations (1) governing the interference potential of devices which in their operation are capable of emitting radio frequency energy by radiation, conduction, or other means in sufficient degree to cause harmful interference to radio communications. . ."

permit the Commission to promulgate rules prohibiting manufacture and marketing of any external amplifier capable of use between 24 and 35 MHz, regardless of whether it can also be used on other frequencies.<sup>70</sup>

Such provisions, together with the broad general grants of Commission rulemaking authority, support the Commission's authority to grant a single license under which all unlicensed device manufacturers must operate.<sup>71</sup> The plan is a reasonable measure that is designed to minimize harmful interference between services, facilitate the rapid deployment of new services, and compensate those who must relocate. To make such developments possible is clearly in the public interest.

The Commission could condition grants of equipment authorization on a manufacturer's participation in the entity under its broad rulemaking authority, discussed above, and specifically, under its authority to promulgate rules that minimize harmful interference between incompatible systems. Moreover, type acceptance might also be tied in with the development of a "spectrum etiquette" whereby the members of the industry-wide consortium would establish technical standards and non-interference strategies. In order to secure equipment type acceptance, manufacturers would have to comply with this spectrum etiquette,

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<sup>70</sup> See, e.g., Amendment of Parts 2 and 97 of the Commission's Rules, 67 F.C.C. 2d 939 (1978) upheld in American Radio Relay League v. FCC, 617 F.2d 875 (D.C. Cir. 1980).

<sup>71</sup> It is important to recognize that the Motorola is not here advocating the establishment of a mandatory consortium of all eligible applicants to hold the license. The FCC's power to establish such an entity remains subject to serious doubt. Aeronautical Radio, Inc. v. FCC, 928 F.2d 428, 429 (D.C. Cir. 1991).

including both equipment design and any operating or coordination requirements. The establishment of such requirements would appear to be fully within the broad FCC authority discussed in the previous subsection.

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It follows from the foregoing that the best mechanism for securing the Commission's goals in this proceeding would be the creation of a single entity to effectuate the clearing of 2 GHz spectrum for the use of unlicensed devices. Such an entity offers a number of benefits that could not be realized under any alternative proposal now before the agency. Accordingly, Motorola urges the Commission to provide for the establishment of a consortium of interested manufacturers to implement its unlicensed device policies.

**B. There Is A Documented Need To Adopt A Spectral Etiquette for Unlicensed PCS Devices**

As "[t]he definition of unlicensed PCS implies numerous providers on common shared frequencies operating in an autonomous manner," many parties agree that "[s]tandards are needed to ensure co-existence among the unlicensed PCS users and provide a 'protected' operating environment to avoid chaos in the deployment of unlicensed devices."<sup>72</sup> Without a minimal set of rules, generally known as a "spectrum etiquette," "[i]nterference of uncoordinated Unlicensed PCS

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<sup>72</sup> BellSouth at 28. See also, California Microwave at 2; Ericsson at 23; Hewlett Packard at 2; Hughes Network at 6; Metrocall of Delaware at 11-17; TIA at 6-7; Telocator at 19; UTC at 17-18; WinForum at 12-14.

operations to other Unlicensed PCS operations . . . can be expected to be severe and disruptive. . . ." <sup>73</sup> As discussed below, however, Motorola and others believe that one or more consensus spectrum etiquettes can be developed to control interference between and among non-licensed devices.

In this regard, the opening comments express broad based agreement that the Commission should rely on industry standards bodies to promulgate technical standards sufficient to ensure fair access to, and efficient utilization of, the unlicensed spectrum. <sup>74</sup> The WINForum comments, for example, document substantive efforts to develop a spectrum etiquette to promote spectrum efficiency and sharing of frequencies by a wide variety of unlicensed devices. <sup>75</sup> Given the differences between wireless voice and data applications, however, Motorola believes that more than one etiquette will likely be required. Motorola is confident that this task can be accomplished because, as Ericsson notes, "[t]here are qualified trade associations and standards organizations [such as Telocator and TIA] that have devoted significant efforts to analyzing this and similar problems." <sup>76</sup>

Finally, Motorola reiterates its concern that the Commission's type acceptance rules must provide an enforcement mechanism to ensure that new

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<sup>73</sup> BellSouth at 28.

<sup>74</sup> See note 76 supra.

<sup>75</sup> WinForum at 12-14.

<sup>76</sup> Ericsson at 23.

equipment meets industry formulated non-interference etiquettes. By adopting rules which incorporate industry consensus on technical requirements, the Commission will ensure that devices of different manufacturers can coexist with one another in the 1910-1930 MHz band proposed for unlicensed PCS.

**V. THE RECORD SUPPORTS THE COMMISSION'S PROPOSED ALLOCATION FOR 900 MHZ NARROWBAND PCS WITH MINOR MODIFICATIONS**

The industry has overwhelmingly supported the Commission's proposals for authorizing narrowband PCS systems in the 901-902 MHz, 930-931 MHz, and 940-941 MHz bands. Specifically, the industry has shown broad based agreement on a number of the technical options suggested in the Notice, as well as on several industry-proposed enhancements to the Commission's general regulatory framework for narrowband PCS. As discussed below, the Commission should act favorably on these industry initiatives, thereby encouraging development of innovative systems and fostering the availability of a variety of new market offerings.

**A. Commenters Strongly Support the Proposed Narrowband PCS Allocation for Messaging and Data Applications**

Interested industry commenters have almost universally agreed with the decision to allocate the 901-902 MHz, 930-931 MHz, and 940-941 MHz bands for

narrowband PCS.<sup>77</sup> Parties have also recognized that narrowband PCS services should be broadly defined and that the rules adopted for such services should "allow flexibility in the design and implementation of different and innovative systems. . . ." <sup>78</sup> The breadth of support for the Commission's proposals and intense industry interest in these next-generation services demonstrates that the Commission can immediately realize substantial benefits for the public by simply allowing the use of these three 900 MHz bands for narrowband PCS systems.

In fact, only Corporate Technology Partners ("CTP"), In-Flight Phone ("In-Flight"), and the American Petroleum Institute ("API") have opposed the proposed allocation. These parties' objections are, in effect, not arguing against narrowband PCS, but rather requesting allocation of specific frequency bands within the proposed narrowband PCS allocation for their own specific services.<sup>79</sup> As discussed below, however, the record suggests that it would be inappropriate to permit use of narrowband PCS spectrum for CT-2, as suggested by CTP;<sup>80</sup> for broadcast services, as suggested by In-Flight; or for conventional land mobile radio service, as suggested by API. The proposed allocation for narrowband PCS

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<sup>77</sup> Motorola at 15; see also American Paging at 2-3; Arch Communications Group at 4; BellSouth at 26; Berlin at 5; Dial Page at 6; Ericsson at 26; Florida Cellular at 6; Freeman Engineering Associates at 2-4; GEM at 1; Kleiner Perkins at 1; Matsushita at 6; Metriplex at 1; Metrocall at 6; Mtel at 2; NABER at 6; PacTel Paging at Attachment 2; PageMart at 7; PageNet at 22; TIA at 11; Telocator at 3; USSBA at 8.

<sup>78</sup> Notice at 5696.

<sup>79</sup> *In-Flight* at 7; API at 23-25.

<sup>80</sup> American Paging at 3; Metrocall at 9-10; NABER at 7-8; Telocator at 6; but see CTP at 10.

provides an opportunity to foster new advanced messaging and data services which would be undermined by using the allocation to offer services that can, or should, be implemented in other spectrum.

**CT-2 Services.** There is a wealth of record opposition to allocating 900 MHz frequencies for CT-2 based services. In fact, the impropriety of using the narrowband PCS spectrum for CT-2 was demonstrated at the time this option was originally introduced during the initial inquiry phase of the Commission's proceeding on PCS.<sup>81</sup> Specifically, the spectrum requirements needed for CT-2 services are significantly greater than other narrowband services,<sup>82</sup> and CT-2 and enhanced CT-2 services could more appropriately be offered in higher bands. As discussed in Section II, infra, Motorola believes that at least one and possibly two unpaired 10 MHz allocations are warranted for local area PCS uses, including CT-2 services.

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<sup>81</sup> As Telocator noted when it proposed to allocate spectrum in the 900 MHz band for AMS, the comments evidenced only "lukewarm support for such [a CT-2] allocation" and there was "widespread and well-founded opposition." (citing Telocator Petition at 19). Indeed, Telocator also noted that no CT-2 proponents other than Northern Telecom came forward to address Telocator's conclusions in the AMS proceeding, and, in fact, that Northern Telecom merely sought to clarify its prior statements. Telocator Reply Comments at 14, RM-7617 (March 26, 1991). Furthermore, at no time during the lengthy proceedings in ET Docket 92-9 did any CT-2 proponents come forward to press a claim for spectrum in the 900 MHz band or refute the voluminous showings of demand for AMS services.

<sup>82</sup> As Motorola noted in its comments in response to the Notice of Inquiry on PCS, "the three disparate MHz at 900 MHz mentioned as candidate spectrum are inadequate for a viable U.S. CT-2 type of service. As a benchmark, Canada which has total population of approximately one tenth that of the U.S. and core city population densities significantly less than those in the U.S. has planned to allocate 944-948 MHz initially for CT-2 with possible expansion up to 952 MHz, or a total of 8 MHz of spectrum." Comments of Motorola, Inc. at 132-33, GEN Docket 90-314 (January 15, 1991).

**In-Flight Entertainment Services.** In-Flight's proposed entertainment service for airplanes in transit does not appear consistent with the services envisioned for the 900 MHz narrowband PCS allocations.<sup>83</sup> As an initial matter, In-Flight's service, unlike other proposed messaging services, does not provide for customer control over content, but rather transmits information within the sole discretion of the licensee. Thus, it appears more akin to broadcast than personal messaging. In addition, In-Flight's service would consume 250 kHz in both the 930-931 MHz and 940-941 MHz bands. As a result, In-Flight's pseudo-broadcast service proposal bears little resemblance to the "narrowband personal communications services" suggested for these bands.

**Conventional Land Mobile Radio Services.** While Motorola supports additional spectrum in which to introduce private emerging technology services, the three one megaHertz slivers at 900 MHz will in no way solve this need. Motorola thus believes the Commission should heed API to the extent that API "urges the Commission to find other spectrum to accommodate [API's] proposal in the near future. . . ."<sup>84</sup>

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Motorola does not believe the record supports use of the 900 MHz spectrum identified in the Notice for CT-2 service, In-Flight's entertainment service, or

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<sup>83</sup> In-Flight at 9.

<sup>84</sup> API at 25.



conventional land mobile radio services. Attempting to accommodate these services would have a substantial preclusory effect on the ability to launch a diverse variety of narrowband PCS messaging and data services. Accordingly, the 900 MHz bands proposed for narrowband PCS should be dedicated exclusively for new advanced messaging and data services.

**B. The Comments Support Adoption of a Flexible Bandplan Capable of Accommodating a Variety of System Architectures**

Numerous bandplans and channelization principles were submitted for the 900 MHz narrowband PCS spectrum identified in the Notice. These varying plans, however, are not fundamentally opposed. To the contrary, several important consensus positions can be extracted from the proposals, including the need for asymmetrical and symmetrical channel pairs, the need for a dedicated low-power band, and the overall requirement of flexibility. As discussed below, Motorola believes that its proposed bandplan, which captures the benefits of these suggestions, best balances spectral efficiency, competition, administrative convenience, and flexibility.

**1. The record demonstrates consensus on specific, identifiable needs for narrowband PCS systems**

There were broad areas of agreement within the comments regarding specific channelization requirements for narrowband PCS systems. Specifically, a

wide range of commenters recognized the need to provide both symmetrical and asymmetrical paired narrowband PCS channels, the engineering and cost benefits of a low-power band dedicated for talk-in channels, and the necessity of maintaining overall flexibility to accommodate a wide range of new system architectures. Motorola believes the documented advantages of these industry proposals justify modification of the Commission's original recommendations.

**Need for Paired Channels.** The benefits of paired channels to accommodate demand for two-way narrowband systems is readily evident from the comments.<sup>85</sup> Providing paired channels facilitates design and cost efficiencies of two-way systems by allowing the use of frequency division duplex technology. While two-way systems can be developed using time division duplex on a single channel,<sup>86</sup> narrowband PCS system designers should have available the broadest options technically feasible. In addition, as discussed below, paired channels, in conjunction with a low-power talk-in band, can produce significant cost efficiencies for narrowband PCS systems.

**Need for Asymmetrical Channel Pairs.** A substantial base of commenters have also concurred with Motorola that asymmetrical pairings, in addition to

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<sup>85</sup> Motorola at 20; American Paging at 3-4; Arch at 5; BellSouth at 26; Dial Page at 7; Ericsson at 26; Freeman Engineering Associates at 4-5; Matsushita at 6; Metriplex at 12; NABER at 8; PacTel Paging at 21; PageMart at 7; PageNet at 12-13; Telocator at 9.

<sup>86</sup> See, e.g., Mtel at 4.

symmetrical pairings, would have spectral efficiency benefits.<sup>87</sup> As Motorola noted in its initial comments, the balance of traffic on typical systems designed for these bands will have greater need for talk-out capacity than talk-in capacity. For example, nearly all pioneer's preference applicants have recognized the advantages of locating a subscriber mobile prior to transmitting message or data traffic, a scheme that requires greater utilization of the talk-out channel to "simulcast" multiple location queries, but creates efficiencies on the talk-in channel by enabling frequency re-use. Consequently, allocating asymmetrical channels better matches the real world traffic demands of narrowband PCS systems with channel capacity.

**Reserving 901-902 MHz for Low-Power Talk-In.** Commenters have also recognized the potential engineering and cost benefits of reserving the 901-902 MHz band exclusively for low-power talk-in channels.<sup>88</sup> Motorola's initial comments documented the advantages of isolating high power transmitters that would desensitize the narrowband PCS receivers. The absence of high power transmitters has a profound effect on system cost that would be reflected in lower monthly charges to narrowband users.

**Flexible Channelization.** Proceeding from the diverse range of pioneer's preference applications submitted in this proceeding, commenters have recognized

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<sup>87</sup> Motorola at 20; Dial Page at 6; NABER at 8; PacTel Paging at 21; PageMart at 7; PageNet at 12-13; Telocator at 9;

<sup>88</sup> Motorola at 19; Arch Communications at 4; Dial Page at 7; Ericsson at 26; Freeman Engineering Associates at 11; Metriplex at 12; NABER at 8; PacTel Paging at Attachment 2; PageNet at 12-13; Telocator at 9. See also TIA at 11-12 (recommending low power use of the 940-941 MHz band instead of the 901-902 MHz band).

the need for flexibility to accommodate radically different spectrum requirements.<sup>89</sup> Commenters have suggested bandplans incorporating a wide range of bandwidths<sup>90</sup> or promoted the use of channel stacking policies allowing aggregation of spectrum in a post-licensing aftermarket.<sup>91</sup> Unfortunately, many of these proposals offer only a limited number of licenses for each system class due to spectrum constraints, or would require complex licensing procedures for different types of systems. Consequently, the need to accommodate different system proposals must be balanced against administrative convenience and preservation of entry opportunities.

## **2. Motorola's bandplan best satisfies documented needs for narrowband PCS systems**

In its original comments, Motorola provided a bandplan for consideration supporting a broad range of potential new narrowband PCS system architectures. In brief, Motorola's bandplan proposed to dedicate both the 930-931 MHz and 940-941 MHz bands for talk-out channels and the 901-902 for low-power talk-in channels. The majority of the 940-941 MHz, from 940.000 MHz to 940.550 MHz, as well as the entire 930-931 MHz band, would be channelized into thirty-

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<sup>89</sup> Motorola at 20; Arch Communications at 5; Dial Page at 6; Freeman Engineering Associates at 4-5; In-Flight at 6-8; Kleiner Perkins at 2; Mtel at 8; PacTel Paging at 21; PageMart at 7; PageNet at 12-13; Telocator at 6-9; USSBA at 15.

<sup>90</sup> Motorola at 20; Arch at 6-7; Ericsson at 26; SWBT at 5.

<sup>91</sup> American Paging at 4; BellSouth at 26-27; Dial Page at 7.

one 50 kHz channels. Each of these 50 kHz talk-out channels would also be asymmetrically paired with one of forty-four 12.5 kHz talk-in channels in the 901.000 MHz to 901.550 MHz band.<sup>92</sup> The remaining talk-out spectrum, 940.550-941.000 MHz, would be divided into three 150 kHz channels, symmetrically paired with three 150 kHz channels in the remaining talk-in spectrum, 901.550-902.000 MHz.

While asymmetrical data applications predominate, symmetrical data applications are also important. Examples include file transfers, E-Mail initiation while traveling, graphics transmissions initiated by the mobile unit, etc. These applications tend to align with higher data rates due to the number of bits required. Motorola believes 150 kHz paired channels is a good compromise for these applications given the limited amount of spectrum available in the Narrowband proceeding. We, of course, support the use of these channels consistent with market force determination of the best usage. For example, if an operator wants to split these channels into 25 kHz segments for a certain type of service that should be allowed. Inclusion of 150 kHz channels in the bandplan provides licenses that support higher speed data service. Without such channels, one would have to rely solely on the secondary market for spectrum to create such a system.

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<sup>92</sup> The thirteen 12.5 kHz channels remaining would be used to allow existing operators to take advantage of new emerging technologies to offer two-way services.

Motorola believes its bandplan provides optimal flexibility for narrowband PCS systems while combining all of the consensus revisions to the Commission's plan. Motorola's plan, for example, responds to needs for asymmetrical and symmetrical channel pairing by providing both 50 kHz/12.5 kHz pairs and 150 kHz/150 kHz pairs. In addition, Motorola's plan provides a dedicated band for low-power talk-in operations at 901-902 MHz. Moreover, as discussed below, Motorola's plan, in conjunction with channel division and stacking policies, provides great latitude for deployment of systems employing virtually any bandwidth.

Each of the bandwidths selected by Motorola for initial license grants also is intended to accommodate demonstrated needs:

- Motorola's choice of 50 kHz for asymmetrical talk-out channels was based on the need to provide enough bandwidth to offer much higher speed data schemes relative to today's services. Many providers have indicated that 50 kHz is the minimum bandwidth needed to implement advanced transmission schemes.
- Motorola also believes that 12.5 kHz talk-in channels allow enough flexibility to offer many different types of narrowband services. Advanced technologies appear to allow 12.5 kHz talk-in channels to support the traffic requirements of 50 kHz narrowband systems.
- Realizing that the Commission is trying to keep this band as flexible as possible, Motorola also proposed three 150 kHz pairs that could be used any way a licensee desires as long as the spectral mask rules are satisfied.

The use of these bandwidths for initial grants will simplify greatly the licensing process and satisfy the demands of the majority of narrowband PCS participants.

Even with the variety of bandwidths available under Motorola's plan, the Commission's goal of flexibility can be further enhanced by allowing simple post-grant channel division and stacking. Motorola and a number of other commenters believe this policy would provide the best compromise of administrative convenience, competition, and flexibility. For example, channel division policies should permit a licensee to split a 50 kHz channel into two 25 kHz channels. In addition, providers with greater spectrum needs should be allowed to acquire additional spectrum in the aftermarket, up to a proposed maximum of 250 kHz,<sup>93</sup> to implement their systems. In this manner, the Commission could initially satisfy the majority of narrowband PCS spectrum requests without precluding any architecture.

**C. There Is Wide Support for Both Nationwide and Regional Narrowband PCS License Areas**

Commenters also overwhelmingly maintain that markets for narrowband PCS offerings will be large regions and nationwide, rather than local.<sup>94</sup> The precursors of narrowband PCS -- paging and messaging services -- have developed into inherently wide area services. Because a significant segment of narrowband PCS

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<sup>93</sup> Providers licensed 150 kHz channel pairs, of course, would be exempted from this spectrum cap, but would not be eligible to obtain more than their existing license.

<sup>94</sup> Motorola at 21-22; American Paging at 5; Ericsson at 26; MTel at 13-14; PageNet at 9-12; Telocator at 10-13.

will be an outgrowth of these services, using next generation technology, narrowband PCS offerings will serve similar regional and national consumer needs.

Virtually all of the commenters discussing license areas, in fact, have recommended allocation of at least some nationwide licenses. Motorola's bandplan, for example, contemplates three national systems using 50 kHz/12.5 kHz pairing. Three national providers would provide for competition, while still preserving entry opportunities for smaller entities seeking to participate in narrowband PCS.

Most commenters also agree that broad regions are appropriate for the remaining narrowband PCS licenses. Motorola suggests that five regional areas would be appropriate to minimize coordination difficulties while providing unified coverage of clusters of major metropolitan areas with significant inter-city traffic. In this manner, the utility of service would be maximized and licensing burdens on the Commission would be minimized.

**D. Commenters Support Liberal Technical Standards for Narrowband PCS Systems**

Broad based consensus has also emerged on technical regulations for narrowband PCS systems. Commenters have agreed, for example, that the antenna height and power rules for narrowband PCS should be based on the existing Part 22 rules for paging systems.<sup>95</sup> After deliberating on the comments,

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<sup>95</sup> Arch at 14; MTel at 7; PacTel Paging at 28; Telocator at 18.



however, Motorola believes several revisions to these rules may be warranted. As discussed below, Motorola's suggestions are consistent with the general tenor of the comments in favor of licensee flexibility.

First, Motorola suggests that the power and height limits for nationwide paging systems should be adopted for all narrowband PCS licensees, including regional licensees. One of the primary benefits of licensing large regions is allowing licensees to realize economies of scope in the provision of service over wide areas. Because the number of licensees operating on any particular channel would be limited, and thus coordination relatively simplified, Motorola believes nationwide paging power limits would not unduly complicate co-channel coordination and would have substantial wide area coverage cost benefits.

Second, Motorola believes the power and height limits should be revised to reflect the wider bandwidth available to narrowband PCS licensees over their Part 22 counterparts. The 3.5 kW limit on talk-out transmitter power, for example, is based on the 25 kHz channel standard used in the paging services. Because many licensees will operate with 50 kHz or more, however, use of standards evolved from 25 kHz channelization may unnecessarily limit licensee flexibility. Motorola believes the increased bandwidth of narrowband PCS systems should allow 50 kHz licensees to operate with 7 kW and 150 kHz licensees to operate with as much as 21 kW, as long as applicable emissions mask limits are met.

Finally, Motorola believes the Commission should adopt flexible modulation standards and emission limitations, as illustrated by the emissions mask proposed by Motorola.<sup>96</sup> Motorola's initial comments proposed an emissions mask that allowed for more power in the occupied bandwidth in order to encourage the use of new modulation techniques, as long as the power is at least 70 dB down at the channel edges. While Motorola provided charts graphically demonstrating how the emissions mask would apply for 12.5 kHz, 50 kHz, and 150 kHz channels, it should be emphasized that the mask can be scaled for any bandwidth actually used for narrowband PCS systems.

Motorola believes these proposed revisions would add to licensee's flexibility without increasing the danger of intersystem interference and without necessitating complex coordination between licensees. While the Part 22 rules are a generally agreed upon starting point, the Commission should recognize that new narrowband PCS systems will differ in significant respects from existing Part 22 systems. Because in many cases these differences inherently limit the potential for interference, more relaxed regulations can be employed without undermining the original purpose of the rules.

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<sup>96</sup> Motorola at Appendix A; Freeman Engineering Associates at 11; Mtel at 7; Telocator at 17-18.

## **VI. THE RECORD STRONGLY SUPPORTS THE REFORM OF THE FCC'S LICENSING PROCESS TO PREVENT SPECULATION**

As Motorola and many other parties commenting have documented, the current lottery process has been subject to substantial abuse. Accordingly, Motorola believes that the Commission must carefully structure application requirements to promote the most effective selection of operators of licensed PCS systems. By adopting the specific application requirements suggested below, Motorola believes the Commission will accomplish this goal without creating significant administrative burdens.

### **A. The Current Lottery Process Encourages Widespread Speculative Abuses**

The Commission has had substantial experience with the use of lotteries to determine licensees. Most cellular markets, for example, were licensed pursuant to a lottery process.<sup>97</sup> The Commission currently expects to use this selection

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<sup>97</sup> See 47 C.F.R. § 22.33 (1991). Comparative hearings were held in many of the top 30 markets; in most cases the licenses were issued pursuant to settlement agreements. Applications for markets 61-90 were filed in expectation of comparative hearings as well, but lottery rules, applicable to all markets below the top 30, were subsequently adopted. See Cellular Lottery, Report and Order 98 FCC 2d 175 (1984), modified, 101 FCC 2d 577 (1985), further modified, 59 Rad. Reg. 2d (P&F) 407 (1985), aff'd in part & rev'd in part Maxcell Telecom Plans v. FCC, 815 F.2d 1551 (D.C. Cir. 1987). Lotteries were used for licensing of the Rural Service Areas ("RSAs") and have been adopted for cellular unserved areas. See Rural Cellular Service, 60 Rad. Reg. 2d (P&F) 1029 (1986), modified 2 FCC Rcd 3366 (1987), further modified, 4 FCC Rcd 5272 (1988), and 4 FCC Rcd 4464 (1989); Amendment of Part 22 of the Commission's Rules to Provide for Filing and Processing of Applications for Unserved Areas, 5 FCC Rcd 1044 (1990); modified, 6 FCC Rcd 6185 (1991).

method for the selection of licensees in the 220-222 MHz private land mobile radio service.<sup>98</sup>

The Commission's experiences with the lottery process have led to a number of modifications in the applicable policies. Nonetheless, the selection of mobile radio licensees by lottery has repeatedly resulted in severe abuses of the Commission's licensing processes. The extensive marketing of "lottery tickets" by application mills has been well-documented, as has the deluge of speculative applications filed with the FCC. Many parties have commented on the harmful effects of speculation in other contexts and urged the imposition of stringent safeguards to prevent PCS from suffering the same fate. Motorola shares the belief that fears of speculative abuse are particularly well-founded with respect to PCS because these new services are viewed by many as the next great investment opportunity in the mobile telecommunications industry.<sup>99</sup>

In the absence of appropriate safeguards, licensed PCS will attract an enormous outpouring of applications. Many of these filings will come from speculators who have neither the interest nor the ability to deliver PCS to the

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<sup>98</sup> Amendment of Part 90 of the Commission's Rules to Provide for Use of the 220-222 MHz. Band by the Private Land Mobile Radio Services, 6 FCC Rcd 2356 (1991), affirmed 7 FCC Rcd 4484 (1992).

<sup>99</sup> PCS has been predicted to serve 150 million people worldwide and generate as much as \$50 billion to \$60 billion in revenues within a decade. See Congressional Budget Office, Auctioning Radio Spectrum Licenses, March 1992, p. 30.

public. The effect will be to delay the deployment of competitive, diverse PCS offerings, thus undermining the goals set out in the Notice.<sup>100</sup>

**B. The Commission Must Take Steps To Minimize the Filing of PCS Applications by Unqualified Speculators**

To prevent speculative abuses from occurring in the 2 GHz PCS licensing process, it is essential that the Commission adopt tough, stringent safeguards. Motorola concurs with many of the suggestions offered by commenting parties, but, believes that their proposals could be strengthened in some respects to more effectively curb the anticipated abuse of the PCS lotteries process. The following steps should facilitate the achievement of the goals underlying the Commission's establishment of PCS.

**High filing fees should be imposed on PCS applicants.** Motorola shares the belief of many commenting parties that adopting high initial filing fees would serve the public interest.<sup>101</sup> Such fees would deter some speculators who otherwise would file license applications for as many markets as possible. Increasing the costs of applying will help winnow out marginal applicants who seek a windfall profit with little or no commitment to provide service to the public. The added costs imposed on legitimate prospective PCS providers are far outweighed by the

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<sup>100</sup> Notice at 5679.

<sup>101</sup> See, e.g., American Personal Communications at 43 and fn. 61; Bell Atlantic PC, Inc. at 28; Centel at 22; McCaw at 38; MCI at 15; Telocator at 14; UTC at 36-37.

public benefits of narrowing the pool of applicants to those actually willing and able to promptly implement promised new services.<sup>102</sup>

**Applicants should be required to demonstrate market-specific financial qualifications.** There is widespread industry support for the imposition of specific financial qualifications that go beyond the "reasonable assurance" standard employed for many new facilities applications. Motorola agrees with the comments of many others that a firm financial commitment is necessary to ensure that only serious, qualified applicants participate in PCS lotteries.<sup>103</sup>

In order to reduce speculation in RSA licensing,<sup>104</sup> private radio licensing,<sup>105</sup> and, more recently, unserved areas licensing,<sup>106</sup> applicants are required to provide a firm financial commitment demonstrating that they have the necessary resources to construct the proposed system and operate it for one year. PCS applicants likewise should be required, at a minimum, to include such a firm financial commitment in their submissions. Mandating such strict showings will

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<sup>102</sup> Moreover, it is not at this time certain that the Commission will decide to issue any nationwide PCS licenses. Smaller service areas will result in filing fees lower than the estimates contained in the Notice (but still at levels requiring some seriousness of purpose on the part of the applicant).

<sup>103</sup> Supporters of a firm financial commitment include Adelphia at 14-15; Ameritech at 38-39; Centel at 22; McCaw at 38; MCI at 15; UTC at 36; Vanguard at 29; and Viacom at 20-21.

<sup>104</sup> 47 C.F.R. § 22.917(c) (1991).

<sup>105</sup> 47 C.F.R. § 90.713 (1991).

<sup>106</sup> 56 Fed. Reg. 58503, 58509 (1991) (to be codified at 47 C.F.R. § 22.917(f)).

help to ensure that only serious, qualified applicants participate in the PCS lotteries.

Elements of the required showing should include the following:

- A specific, independent financial commitment would be required for each PCS application. Thus, an entity filing multiple applications would need to show separate financial qualifications with respect to each proposal.
- The applicant would need to provide a financial commitment or have available financial resources sufficient to cover the realistic and prudent estimated costs of construction as well as operating and other initial expenses for one year.
- The financial commitment must be provided by a state or federally chartered bank or savings and loan association, another recognized financial institution, or the financial arm of a capital equipment supplier.
- The commitment must be based on the lender's review of the applicant's own financial status as well as the specific proposed construction and service plan.
- The lender must commit to providing a sum certain to the applicant. This likely will require the payment of fees by the prospective borrower.
- Alternatively, the Commission should consider requiring applicants to file a performance bond that would cover the construction and first year operating costs.<sup>107</sup> A separate bond would be required for each application and would need to be maintained until the license is actually granted.

**Threshold financial qualifications showings should be strengthened to include a demonstration of financial ability to compensate incumbent 2 GHz licensees for relocation.** Financial commitment requirements are intended to ensure

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<sup>107</sup> Commenters supporting this alternative include AT&T at 4 and MCI at 15.

that applicants have the necessary financing to put new services into operation with as little delay as possible. Since many PCS providers will be unable to deploy new services without relocating some incumbent 2 GHz users to other bands, it is essential that these providers can in fact meet their financial obligations to compensate any 2 GHz licensee forced to relocate prior to the deployment of its new services. Motorola believes that such a showing should be a mandatory component of an applicant's threshold financial qualifications exhibit.

In this regard, it should be noted that the costs of relocating incumbent licensees will probably prove to be significant. As addressed in detail in Section IV of the Comments, relocation costs, including estimates for engineering costs, filing fees, preparation of applications, and negotiations will be at least \$135,000 per link. The Commission should strive to minimize the danger that an underfunded applicant will secure a license only to "sit" on its authorization because it has insufficient resources to compensate a 2 GHz incumbent licensee that must relocate in order to free up the necessary spectrum.

**The Commission should impose minimum construction deadlines and coverage requirements.** Motorola concurs with many commenting parties that the Commission should promulgate strict construction deadlines for all categories of licensed PCS systems.<sup>108</sup> Minimum geographic coverage requirements should be adopted for the 40 MHz vehicular allocation, while the 10 MHz system applicants

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<sup>108</sup> See, e.g., AT&T at 6; Ameritech at 39-40; Centel at 22; McCaw at 39; Rolm at 28; USTA at 28; and UTC at 36.



should be required to define their proposed service area. These steps will help to ensure that PCS offerings are delivered to broad segments of the public as expeditiously as possible. Such rules might be modeled on those applied in the cellular service.<sup>109</sup>

Construction benchmarks with automatic termination provisions are an effective means to ensure the rapid deployment of PCS as well as minimize the number of filings by entities not seriously interested in providing PCS. Moreover, by delineating minimum geographic coverage areas for new 40 MHz systems, the Commission can increase the likelihood that only serious, well-designed proposals benefitting a substantial segment of the population and an appropriate geographic area will be submitted. Such rules might specify that the licensee must provide access to service to a certain percentage of the population or geographic area of the authorized service region within a certain number of years after the grant of the license. Pedestrian-based PCS operations would define their respective service areas, and would be required to provide service throughout that area by a certain date after the license grant. Such requirements, however, would have to be tempered by the fact that the Commission's Emerging Technology decision does not provide clear spectrum within which to implement PCS service.

A PCS candidate's initial application should include: (1) a detailed description of the proposed system to be built; (2) a timetable for completion of

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<sup>109</sup> See former 47 C.F.R. § 22.903 (1991) (governing cellular system service areas); 47 C.F.R. § 22.43 (governing construction periods).